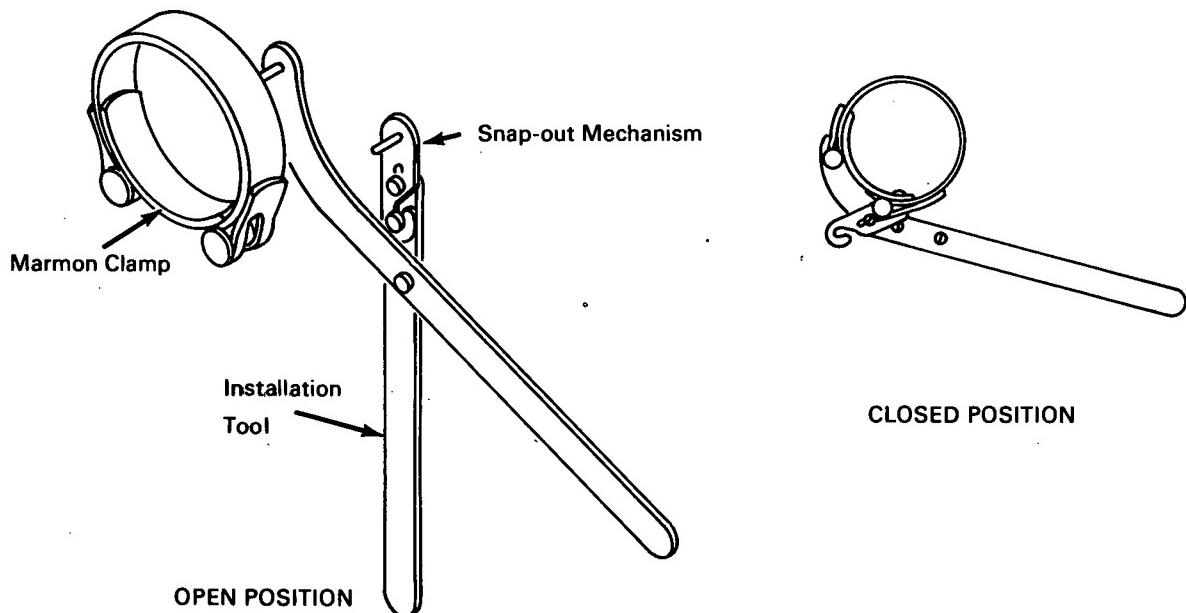


# NASA TECH BRIEF



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## Tool Facilitates Installation of Marmon Clamps



### The problem:

To design a tool to facilitate the installation of Marmon clamps. These clamps are abundantly used on the cold insulation lines of an F-1 engine and on the heat exchanger lines of a Saturn stage engine. The modified pliers which were used were not satisfactory because they required 2 men and about 20 minutes to force the clamp and hold it in alignment while attaching the connecting screw.

### The solution:

An installation tool that provides sufficient mechanical advantage to force the clamps into place, permitting one-man operation. The tool is adjustable for a wide range of sizes.

### How it's done:

The Marmon clamp installation tool consists of two handles which provide the major leverage, and a pivoting arm with a slot to enable snap-out action. In use, the tool is physically located outside the clamp working area and features an off-center-shift locking mechanism.

### Note:

Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Marshall Space Flight Center  
Huntsville, Alabama 35812  
Reference: B67-10105

(continued overleaf)

**Patent status:**

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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